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WORKMAN NYDEGGER (F/K/A WORKMAN NYDEGGER &
SEELEY)

60 EAST SOUTH TEMPLE
1000 EAGLE GATE TOWER
SALT LAKE CITY, UT 84111

EXAMINER

JACOBS, LASHONDA T

ART UNIT

PAPER NUMBER

2157

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/607,500

Applicant(s)

ALAM ET AL.

Examiner

LaShonda T. Jacobs

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 17-20, 22, 24 and 25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 17-20, 22, 24 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

This is a Final Office Action in response to Applicant's Amendment and Request for Reconsideration filed on October 21, 2003. Claims 1, 5-10, 12, 13, 15, 17, 20, 22, 24 and 25 have been amended. Claims 16, 21 and 23 have been cancelled. Claims 1-15, 17-20, 22, 24 and 25 are presented for further examination.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 6, 8-9, 12-13, 16-19, 21, and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by LiVecchi.

As per claims 1 and 17, LiVecchi discloses a networked environment, wherein one or more client computer systems make requests for information from a server computer system, the server computer system providing information in response to the requests from the one or more client computer systems, the server computer system having one or more listen sockets and having a backlog queue for queuing connection requests that the server computer system cannot currently handle, a method of the server computer system reducing denials of service even

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though the server computer system is experiencing a denial of service attack, the method comprising:

- receiving a plurality of connection requests from said one or more client computer systems (col. 1, lines 51-58, col. 3, lines 3-6 and col. 7, lines 22-34);
- establishing a connection socket for at least one of the plurality of connection requests without placing the connection request in a backlog queue (col. 1, lines 51-58, col. 3, lines 3-6, col. 7, lines 22-34, col. 10, lines 52-56 and col. 11, lines 1-15);
- for each connection request for which the server computer system cannot currently establish a connection socket , placing the connection request in the backlog queue without then establishing a connection socket, wherein the backlog queue includes connection requests without regard for whether or no the connection request includes associated request data (col. 13, lines 15-46);
- determining that the backlog queue is being used (col. 13, lines 15-46);
- in response to the determination, identifying any connection sockets that have no received request data (col. 15, line 67, col. 16, lines 1-10 and lines 18-67); and
- disconnecting the identified connections sockets (col. 15, line 67, col. 16, lines 1-10 and lines 18-67).

As per claim 2, LiVecchi further discloses:

- mapping each connection request to a corresponding listen socket (col. 3, lines 16-40, and col. 12, lines 5-22).

As per claim 3, LiVecchi discloses:

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- wherein each listen socket has a corresponding backlog queue (col. 13, lines 15-46, col. 15, line 67 and col. 16, lines 1-10).

As per claims 4 and 19, LiVecchi discloses:

- wherein placing the connection request in a backlog queue comprises placing the request in the backlog queue corresponding to the listen socket that the connection request mapped to (col. 3, lines 16-40, col. 12, lines 5-22, col. 15, line 67, and col. 16, lines 1-10).

As per claim 6, LiVecchi discloses:

- wherein establishing a connection socket for at least one of the plurality of connection requests comprises calling a module that accepts connections and waits for associated request data before completing (col. 9, lines 66-67, col. 10, lines 1-18, lines 27-47, col. 11, lines 66-67, col. 12, lines 1-35, and col. 16, lines 18-67).

As per claim 8, LiVecchi further discloses:

- monitoring the backlog queue, the determination being made while monitoring the backlog queue (col. 3, lines 16-29, col. 13, lines 15-46 and col. 15, lines 13-36).

As per claim 9, LiVecchi discloses:

- wherein determining that the backlog queue is being used comprises detecting that the module that scans at least the backlog queue has returned (col. 3, lines 16-40, col. 9, lines 66-67, col. 10, lines 1-18, lines 27-47, col. 15, line 67, col. 16, lines 1-10, and lines 18-67).

As per claim 12, LiVecchi discloses:

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- wherein monitoring the backlog queue comprises calling a module that scans at least the backlog queue for activity (col. 3, lines 16-40, col. 9, lines 66-67, col. 10, lines 1-18, lines 27-47, col. 13, lines 15-46, col. 15, line 67, col. 16, lines 1-10, and lines 18-67).

As per claim 13, LiVecchi discloses wherein identifying any connection sockets that have connections but no received request data comprises the following:

- calling a module that identifies the state of the connection socket (col. 15, line 67, col. 16, lines 1-10, and lines 18-67).

As per claim 18, LiVecchi further discloses:

- computer-executable instructions for mapping each connection request to a corresponding listen socket, wherein each listen socket has a corresponding backlog queue (col. 3, lines 16-40, col. 10, lines 27-47, col. 12, lines 5-22, col. 13, lines 15-46, col. 15, line 67 and col. 16, lines 1-10).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5, 7, 10-11, 14-15, 20, 22, and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over LiVecchi in view of Srikantan et al (hereinafter, "Srikantan", 2001/0029548).

As per claim 5, LeVecchi discloses:

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- wherein establishing a connection socket for at least one of the plurality of connection requests (col. 1, lines 51-58, col. 3, lines 3-6 and col. 7, lines 22-34).

However, LiVecchi does not explicitly disclose:

- using a Winsock module.

Srikantan discloses a method and apparatus for handling events received at a media-streaming server including:

- using a Winsock module (paragraphs 0017-0019, 0030, 0035-0038, 0041-0043 and 0054-0056).

Given the teaching of Srikantan, it would have been obvious to one of ordinary skill in the art to modify LiVecchi by specifying the application program interface as WinSock API module since the same functionality is achieved.

As per claim 7, LiVecchi discloses:

- wherein the module accepts connects and waits for associated request data before completing (col. 9, lines 66-67, col. 10, lines 1-18, lines 27-47, col. 11, lines 66-67, col. 12, lines 1-35, and col. 16, lines 18-67).

However, LiVecchi does not explicitly disclose:

- a Winsock()AcceptEx()module.

Srikantan discloses a method and apparatus for handling events received at a media-streaming server including:

- a Winsock()AcceptEx()module (paragraphs 0017-0019, 0030, 0035-0038, 0041-0043 and 0054-0056).

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Given the teaching of Srikantan, it would have been obvious to one of ordinary skill in the art to modify LiVecchi by specifying the application program interface as WinSock API module since the same functionality is achieved.

As per claim 10, LiVecchi discloses:

- wherein the module that scans at least the backlog queue for activity (col. 3, lines 16-40, col. 9, lines 66-67, col. 10, lines 1-18, lines 27-47, col. 13, lines 15-46, col. 15, line 67, col. 16, lines 1-10, and lines 18-67).

However, LiVecchi does not explicitly disclose:

- a Winsock()select()module.

Srikantan discloses a method and apparatus for handling events received at a media-streaming server including:

- a Winsock()select()module (paragraphs 0017-0019, 0030, 0035-0038, 0041-0043 and 0054-0056).

Given the teaching of Srikantan, it would have been obvious to one of ordinary skill in the art to modify LiVecchi by specifying the application program interface as WinSock API module since the same functionality is achieved.

As per claim 11, LiVecchi discloses:

- wherein determining that the backlog queue is being used (col. 3, lines 16-29, col. 13, lines 15-46 and col. 15, lines 13-36).

However, LiVecchi does not explicitly disclose:

- detecting that the Winsock()select()module has returned.

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Srikantan discloses a method and apparatus for handling events received at a media-streaming server including:

- detecting that the Winsock()select()module has returned (paragraphs 0017-0019, 0030, 0035-0038, 0041-0043 and 0054-0056).

Given the teaching of Srikantan, it would have been obvious to one of ordinary skill in the art to modify LiVecchi by specifying the application program interface as WinSock API module since the same functionality is achieved.

As per claim 14, LiVecchi discloses:

- wherein the module that identifies the state of the connection socket (col. 1, lines 51-58, col. 3, lines 3-6 and col. 7, lines 22-34).

However, LiVecchi does not explicitly disclose:

a Winsock()getsockopt()module.

Srikantan discloses a method and apparatus for handling events received at a media-streaming server including:

- a Winsock()getsockopt()module (paragraphs 0017-0019, 0030, 0035-0038, 0041-0043 and 0054-0056).

Given the teaching of Srikantan, it would have been obvious to one of ordinary skill in the art to modify LiVecchi by specifying the application program interface as WinSock API module since the same functionality is achieved.

As per claim 20, LiVecchi further discloses:

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- computer-executable instructions establishing a connection socket for at least one of the plurality of connection requests (col. 1, lines 51-58, col. 3, lines 3-6 and col. 7, lines 22-34).

However, LiVecchi does not explicitly disclose:

- at least portions of Winsock module.

Srikantan discloses a method and apparatus for handling events received at a media-streaming server including:

- at least portions of Winsock module (paragraphs 0017-0019, 0030, 0035-0038, 0041-0043 and 0054-0056).

Given the teaching of Srikantan, it would have been obvious to one of ordinary skill in the art to modify LiVecchi by specifying the application program interface as WinSock API module since the same functionality is achieved.

As per claim **24**, LiVecchi discloses a networked environment, wherein one or more client computer system make requests for information from a server computer system, the server computer system providing information in response to the requests from the one or more client computer systems, the server computer system having one or more listen sockets, each listen socket having a backlog queue for queuing connection requests that the server computer system cannot currently handle, a method of the server computing system reducing denials of service even though the server computer system is experiencing a denial of service attack, the method comprising:

- receiving a plurality of connection requests from said one or more client computer systems(col. 1, lines 51-58, col. 3, lines 3-6 and col. 7, lines 22-34);

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- establishing a connection socket for at least one of the plurality of connection requests without placing the connection request in a backlog queue (col. 1, lines 51-58, col. 3, lines 3-6, col. 7, lines 22-34, col. 10, lines 52-56 and col. 11, lines 1-15);
- mapping each connection request to a corresponding listen socket (col. 3, lines 16-40, and col. 12, lines 5-22);
- for each connection request for which the server computer system cannot currently establish a connection socket, placing the connection request in the backlog queue corresponding to the listen socket that the connection request mapped to, wherein the backlog queue includes connection requests without regard for whether or not the connection request includes associated request data (col. 13, lines 15-46);
- monitoring the backlog queue (col. 3, lines 16-29, col. 13, lines 15-46 and col. 15, lines 13-36);
- determining that the backlog queue is being used (col. 3, lines 16-29, col. 13, lines 15-46 and col. 15, lines 13-36);
- identifying any connection sockets that have connections but no received request data (col. 15, line 67, col. 16, lines 1-10 and lines 18-67); and
- disconnecting the identified connection sockets (col. 15, line 67, col. 16, lines 1-10 and lines 18-67).

However, LiVecchi does not explicitly disclose:

- at least portions of Winsock module.

Srikantan discloses a method and apparatus for handling events received at a media-streaming server including:

- at least portions of Winsock module (paragraphs 0017-0019, 0030, 0035-0038, 0041-0043 and 0054-0056).

Given the teaching of Srikantan, it would have been obvious to one of ordinary skill in the art to modify LiVecchi by specifying the application program interface as WinSock API module since the same functionality is achieved.

As per claims **15**, **22**, and **25**, LiVecchi further discloses:

- specifying a grace period spanning the time the backlog queue is determined to be used and the time the identified sockets are disconnected, wherein the disconnection is performed only if the backlog queue still has entries after the grace period (col. 13, lines 15-67, and col. 14, lines 1-26).

Response to Arguments

5. Applicant's arguments with respect to claims 1, 5-10, 12, 13, 15, 17, 20, 22, 24 and 25 have been considered but are moot in view of the new ground(s) of rejection.

The Office notes the following arguments:

- a. Applicants and applicants' attorney express appreciation to the Examiner for the courtesies extended during the recent interview held on October 2003.
- b. The pending the claims are neither anticipated by nor made obvious by the art of record. In particular, LiVecchi and Sugiyama neither anticipate or nor make obvious the pending claims, either singly or in combination.

c. LiVecchi is directed towards thread scheduling techniques for multithreaded servers (LiVecchi, Title), and is not directed towards countering denial of service attacks. As part of the thread scheduling, however, LiVecchi teaches various queuing techniques for responding to incoming requests.

d. The Office Action appears to treat the passive connection queue of LiVecchi as being the backlog queue recited in the claims. However, when the claim is read as whole that is not warranted. For instance, LiVecchi does not teach that a connection socket is established for any of the incoming requests without placing the connection request in the passive connection queue. According to the prior art method described by LiVecchi, each incoming request is placed in the passive connection (see Col. 2, lines 64-66). Furthermore, the prior art method described by LiVecchi does not teach that in response to determining that the passive connection queue is being used, connection sockets are identified that have no received request data and those identified connection sockets are disconnected.

e. The Office Action also appears to treat the “ready” queue of LiVecchi as corresponding to the backlog queue recited in the claims, based on the passages asserted as relevant to the independent claims. However, once again, this is not justified, especially in the light of the amendments to the claims. For instance, the “ready” queue only includes those connection entries for which there is associated received request data. It does not include connection request without regard for whether the connection requests include associated data. Furthermore, LiVecchi does not teach that a connection socket is established for any of the connection request without placing an entry for the connection request in the “ready” queue.

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f. Sugiyama is directed towards a system for network-device management including collecting a storing device attributes that change with time and device attributes that hardly change with time (Sugiyama, Title). Sugiyama teaches the use of WinSock, but otherwise unrelated to responding to connection requests.

g. None of the cited reference, either alone or in combination, anticipates or makes obvious the method, and computer program product as claimed.

In considering (a), Examiner would like to take this time to inform the Applicants and Applicants' attorney that there was an interview scheduled for October 6, 2003 at 2:00 p.m., but apparently the attorney had forgotten about the interview because when the Examiner called the attorney, his secretary inform the Examiner that Mr. Nydegger was engaged in the another meeting at the time. The Examiner told Mr. Nydegger's secretary to call her if he would like to reschedule the interview. Mr. Nydegger never rescheduled the interview; therefore no interview has occurred at this time.

6. In considering (b)-(g), Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaShonda T. Jacobs whose telephone number is 703-305-7494. The examiner can normally be reached on 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 703-308-7562. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

LaShonda T. Jacobs
Examiner
Art Unit 2157

ltj
December 18, 2003


ARIO ETIENNE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100